

URBAN GARDEN AS A TOOLKIT FOR UNDERSTANDING DIVERSITY IN DESIGN EDUCATION

Andrija MIHAILOVIĆ and Barbara PREDAN

University of Ljubljana, Slovenia

ABSTRACT

This paper advocates for a fundamental paradigm shift in design education, moving from a focus on mass consumerism and technical rationality toward ethical and ecological stewardship. Utilising the Futures Triangle methodology, the research analyses the tension between historical pedagogical models and the urgent environmental pressures of the present. By examining the historical weight of industrial productivity and the contemporary push of ecological crises, the study identifies pathways toward a more inclusive, empathetic, and socially just design practice. Central to this proposal is the conceptual framework of “design as gardening,” which reimagines urban gardens as “living laboratories” and “bioregions”. This approach moves beyond anthropocentric design models, encouraging students to engage with more-than-human agencies and local material conditions. By grounding pedagogical practice in a logic of care and bioregional diversity, the paper suggests how design education can cultivate the ethical sensitivity and systemic thinking necessary to address complex socio-ecological challenges. Ultimately, this work repositions the designer's role as a facilitator of collective growth and regenerative futures.

Keywords: Design education, urban gardens, Futures Triangle, empathy

1 INTRODUCTION

In recent decades, the fields of design and engineering, once rooted in human-centred principles infused with profound empathy, have undergone a troubling shift—for example, from durable, repairable products characteristic of artisanal and modernist traditions to disposable, mass-produced items driven by fast fashion and planned obsolescence—prioritising consumerism and unchecked capitalism over human-centred and ecological stewardship. This shift from durable products to disposable, mass-produced items reflects what has been termed a “mining” logic of design—an extractive process that prioritises output over the long-term logic of care and ecological stewardship [1]. This paper critically interrogates the shortcomings of contemporary design and engineering education, which perpetuate this trajectory, and proposes an urgent paradigm shift: embedding a multifaceted understanding of empathy and diversity to restore ethical depth and inclusivity in pedagogical practices. Specifically, this research examines how urban gardens can serve as living laboratories to cultivate empathy and broaden perspectives on diversity, thereby challenging the conventional approaches within design education [2]. To address these challenges, this study employs the Futures Triangle as an analytical and pedagogical framework to explore the interplay of historical precedents, current pressures, and future possibilities in design education. Framed as a reflective, practice-based case study, the research uses urban gardens as a contextual and methodological anchor to investigate how empathy, care, and diversity can be reintegrated into design and engineering curricula.

2 METHODOLOGIES: THE FUTURES TRIANGLE

Within this study, the Futures Triangle functions as a reflective analytical and pedagogical framework rather than a predictive tool, structuring the examination of design education in relation to care and diversity. As articulated by Sohail Inayatullah in his seminal article, the Futures Triangle is a straightforward yet profound futures studies tool designed to map the dynamic interplay of three essential forces shaping any trajectory toward a plausible or preferred future: the *weight of history* (pull of the past), the *push of the present*, and the *pull of the future* [3].

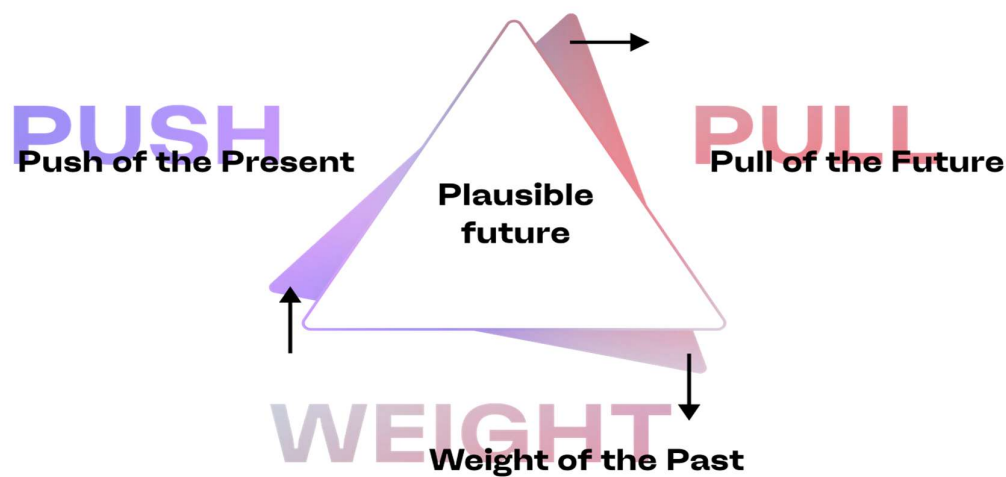


Figure 1. Futures Triangle (Andrija Mihailović, 2026)

The **weight of the past** encompasses entrenched structures, narratives, discourses, and cultural inertia that often resist change, anchoring current realities and constraining innovation. The **push of the present** refers to contemporary trends, disruptions, social forces, and systemic pressures—such as technological advancements or market demands—that propel movement forward, sometimes towards unintended outcomes. Finally, the **pull of the future** embodies aspirational visions, metaphors, or images of preferred futures that inspire action and provide direction, countering historical weights and harnessing present pushes [3].

In this paper, the Futures Triangle illuminates the evolution of design education through the urban garden metaphor, probing historical precedents of garden-inspired care and emancipation, present-day pushes from consumerism and anthropocentrism, and pulls towards empathetic, socio-ecological pedagogies. This framework offers a critical lens through which to analyse how urban gardens, as heterotopias of diverse, often competing visions, can disrupt binary utopian or dystopian views of design education and instead foster a more nuanced understanding of future possibilities.

Using the Futures Triangle, this paper develops a structured, qualitative reflection on design education. Its three dimensions—the weight of the past, push of the present, and pull of the future—provide an analytical framework for examining teaching practices, curriculum orientations, and student engagement in an urban garden-based learning context. Each section of the paper aligns with one dimension of the triangle, enabling a systematic exploration of tensions, constraints, and possibilities in contemporary design education.

3 THE WEIGHT OF THE PAST

The "weight of the past" refers to the enduring influence of historical pedagogical models that have profoundly shaped the epistemological foundations of design education. These models emerged in response to specific social, political, and industrial conditions, introducing radical innovations in how design was taught, practiced, and understood. However, their underlying emphasis on technical rationality, efficiency, and production-oriented problem-solving has narrowed the ethical and relational scope of design, privileging industrial productivity over care, situatedness, and social stewardship.

Among the most prominent institutions of the past in design education, the Bauhaus (1919–1933) stands as a foundational landmark that sought to bridge the gap between art, craft, and industry. It aimed to dissolve the distinction between the "fine artist" and the "craftsman," integrating artistic vision with industrial production [4]. For example, the Vorkurs was a mandatory introductory year where students entered specialised workshops that functioned as workplaces to commercialise Bauhaus-designed products, fostering a model of "learning by doing" [5], [6].

On the other side of the world Black Mountain College (1933–1957) in the United States emerged as a progressive educational experiment that similarly emphasised experiential learning and interdisciplinary collaboration. Unlike the increasingly technical schools in Europe, Black Mountain focused on the arts as the core of a liberal arts education, emphasising process and experimentation over industrial output [7]. While often seen as a successor of Bauhaus, Ulm School of Design (1953–1968) shifted the focus towards a more scientific and methodological approach to design, as the school moved toward a more technical and rational approach to address the complexities of post-war society. This shift best presents the move to a more present-type educational model [8]. Within the Futures Triangle framework, these

historical pedagogical models form the “weight of the past”, not due to any lack of value or innovation, but because their lasting influence continues to define what counts as legitimate knowledge, skills, and practices in design education. This persistence offers a foundation to build upon while also imposing constraints that must be critically navigated in envisioning alternative pedagogical futures.

4 THE PUSH OF THE PRESENT

The “push of the present” highlights contemporary forces, such as rapid technological advancements and urgent environmental crises, that necessitate a paradigm shift in design education to cultivate an ecological consciousness and foster interconnectedness between human and natural systems. There has been a clear disconnect between market requirements and societal needs, where marketability and product competitiveness often overshadow pressing demands for sustainability and broader systemic impacts [9]. This disconnect is also reflected in design education.

Specifically, there have been efforts to introduce sustainable practices and systems thinking into curricula, reflecting a broader transition that design and engineering educators are making to address the inadequacy of traditional, discipline-bound approaches in equipping students for a world beset by social and environmental crises. Within design education, these pressures and responses often result in curricular additions, such as sustainability modules or systems-thinking workshops, that remain marginal to the core pedagogical structure. As a result, ecological and social concerns are frequently addressed as thematic content rather than as foundational epistemological shifts, leaving dominant anthropocentric and consumerist design logics largely intact. These efforts, to introduce more sustainable approaches into curricula often encounter institutional resistance or remain superficial, failing to fundamentally challenge the dominant anthropocentric and consumerist paradigms that drive current design practice [10].

The push of the present thus provides a critical analytical lens for situational analysis based on teaching practice and observed tensions.

5 THE PULL OF THE FUTURE

To counter these entrenched paradigms, the “pull of the future” represents the aspirational visions and transformative potentialities that guide design education toward regenerative and socially just outcomes, drawing on alternative models that emphasise complexity, situatedness, and co-response-ability. The pull of the future is a speculative pedagogical framing that envisions possible futures not as fixed predictions, but as creative provocations to interrogate present trajectories and inspire alternative directions for learning and practice. This approach enables us to identify the essential competencies expected of graduates from design or engineering programmes, necessitating a shift towards curricula that are connective, systemic, and holistic.

6 PLAUSIBLE FUTURES

Within the Futures Triangle framework, a plausible future for design education emerges from negotiating historical constraints, present-day pressures, and aspirational yet situated pedagogical visions. Rather than envisioning a utopian outcome, this framing highlights feasible shifts in educational practices that recognise more-than-human agency and ecological interdependence in learning environments. Here, the pull of the future acts as a pedagogical compass, steering curriculum design, learning outcomes, and assessment methods toward relational thinking, ethical responsibility, and situated engagement, while respecting the practical and institutional realities of contemporary design education.

7 URBAN GARDENS AS A TOOLKIT FOR RETHINKING DIVERSITY: AN EXPLORATORY STUDY

This paper approaches urban gardens and community-based initiatives as exploratory pedagogical contexts through which regenerative imaginaries and future-oriented design practices can be examined [11]. Rather than presenting urban gardens as a definitive solution to the tensions discussed above, the study uses them as a grounded and situated context for reflecting on how design education might engage more directly with ecological interdependence, social diversity, and hands-on, community-oriented learning [12].

Using the Futures Triangle as a speculative exploratory tool, the section connects past influences, present forces, and future aspirations to reimagine design education through an unconventional metaphorical lens. This methodology is further developed through Fallan’s concept of “Epithelial Metaphors,” particularly his critique of design as “mining” and his proposal to rethink design practice

as “gardening”. In this sense, following Fallan, the urban garden is not treated merely as a site of cultivation, but as a pedagogical metaphor and methodological tool that supports a shift from extraction, production, and control toward care, maintenance, adaptation, and situated responsibility.[1]. Implementation of urban gardens as a pedagogical toolkit within a specific design curriculum, could therefore illustrate how living laboratories may support a transition from a paradigm of mining to one of gardening [1]. For this we need to interpret urban gardens not merely as static sites of cultivation but as bioregions. John Thackara conceptualises bioregions as spatial frameworks that reconnect human activity with ecological systems and local material conditions. Rather than defining space through administrative or political boundaries, bioregional thinking emphasises living systems as organising principles for spatial and social life. Thackara states, “A bioregion re-connects us with living systems, and each other, through the places where we live...” Bioregions thus serve as catalysts for social and ecological innovation by grounding design practice in the specificities of place and the interdependence of human and non-human systems [13]. This pedagogical shift requires students to engage in "learning to be affected" by the more-than-human, fostering an affective education where designers develop sensitivity to non-human agency and relational entanglements. This re-orientation transforms the design student into a "cultivator" or "gardener" of socio-ecological systems, fostering a sense of co-liberation and challenging dominant anthropocentric views prevalent in traditional design pedagogy [14]. This viewpoint holds particular significance in comprehending urban gardens not simply as green infrastructure, but as interconnected socio-ecological arenas where environmental dynamics and social activities intersect. It is also not necessary to limit this approach only to a physical realm of the bioregion but rather extend it to a methodological framework that informs how designers and engineers engage with complexity, adaptability, and the co-production of knowledge across diverse systems. This methodological extension is exemplified by the concept of "design as gardening," which applies a logic of care to the cultivation of conditions across all stages of design.

8 CONCLUSIONS

Using the Futures Triangle as a framework to reconstruct the past, present, and possible futures of design and engineering education helps to outline the key competencies anticipated from design and engineering graduates, calling for curricula that are interconnected, systemic, and holistic. By positioning urban gardens as exploratory pedagogical sites, this study suggests how immersive engagement with bioregional diversity may cultivate the necessary ethical sensitivity and collaborative capacity for addressing complex socio-ecological challenges. Rather than proposing a universal model, this paper positions urban gardens as one possible pedagogical toolkit through which design and engineering education can experiment with alternative values, epistemologies, and futures grounded in care, diversity, and ecological responsibility.

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